

## **Great Lakes Restoration Initiative Proposed 2010 Funding Plan**

### **Executive Summary**

The U.S. Environmental Protection Agency (EPA), together with its federal agency partners, is developing a new Great Lakes Restoration Initiative. The Initiative begins in 2010 by identifying \$475 million for programs and projects strategically chosen to target the most significant environmental problems in the Great Lakes ecosystem.

The Initiative uses outcome-oriented performance goals and measures to direct Great Lakes protection and restoration funding to the following focus areas:

- Toxic Substances and Areas of Concern
- Invasive Species
- Nearshore Health and Nonpoint Source Pollution
- Habitat and Wildlife Protection and Restoration
- Accountability, Monitoring, Evaluation, Communication, and Partnerships

Funds will be used to strategically implement both federal projects and prioritized/competitive grants. (Note: These funds will not be directed toward water infrastructure programs that are addressed under the Clean Water or Drinking Water State Revolving Fund program.) Funding will be used or distributed directly by EPA through grants and cooperative agreements or through interagency agreement transfer of funds to other federal agencies for subsequent use and distribution. Most grants will be issued competitively.

Implementation of the Initiative will begin in FY2010. By September 1, 2009, the Interagency Task Force will develop a draft Great Lakes Restoration Initiative Plan for restoration activities in FY2011 and beyond. An annual Report to the President will describe accomplishments to date, activities planned for the upcoming year, and progress toward meeting ecosystem goals.

## **Great Lakes Restoration Initiative Proposed 2010 Funding Plan**

The Great Lakes are a national treasure and an important part of the physical landscape and cultural heritage of North America. Shared with Canada and spanning more than 750 miles from west to east, the Great Lakes provide water for consumption, transportation, power, recreation, and a host of other uses. The Great Lakes hold 20 percent of the world's fresh surface water, have a 10,000 mile coastline, and drain about 200,000 square miles of land. The Great Lakes Basin, which is home to over 30 million people in the U.S. and Canada, has unique landscape features such as sand dunes, coastal wetlands, over 30,000 islands, rocky shorelines, prairies, savannas, and forests. The Great Lakes region contains a diverse array of biological communities, including over two hundred globally-rare plants and animals and over 40 species that are found nowhere else in the world.

### **Challenges**

Despite their immense size, the Great Lakes are highly sensitive to biological and chemical stresses which are slowing or even reversing the restoration progress made through years of concerted government effort and expenditures. The Great Lakes face a number of serious challenges. The most significant of these include toxic substances, invasive species, nonpoint source pollution and nearshore impacts, habitat and species loss, and a need for better information to guide decision making.

Although releases of toxic pollutants have been reduced significantly over the years, there is a legacy of contamination in sediments and excessive levels of contaminants are still found in fish throughout the system. All Great Lakes States have fish consumption advisories. Mercury and other pollutants continue to enter the Great Lakes from nearby and global sources through air deposition. Newly recognized chemicals of concern are also being identified as potential threats to the chemical integrity of the Great Lakes. Of the 31 toxic hotspots identified as Areas of Concern in the United States more than 20 years ago, only one has been restored to the point where it could be delisted.

Aquatic invasive species cause ecological and economic damage, and they greatly complicate efforts to restore the Great Lakes. New species of invaders arrive at the rate of about one every eight months, adding to the more than 180 already established in the basin.

Pollution from nonpoint sources contributes to impaired water quality and excess nutrients. Many of our coastal areas also suffer from sewer overflows that contaminate the water and close the beaches.

Habitat destruction and degradation due to development, competition from invasive species, alteration of natural lake level fluctuations and flow regimes, poor land management, and habitat fragmentation have negatively impacted habitat and wildlife. This has led to altered food webs, a loss of biodiversity, and poorly functioning ecosystems. Yet, opportunities for the protection and restoration of critical habitat exist throughout the basin.

While the Great Lakes region has been a leader for innovative science and advances in natural resource management, there are still significant gaps in knowledge about ecological process and key indicators of ecosystem health. Strategically identified and collected information is needed to inform implementation activities, assist tracking and reporting of progress, and to identify adaptive management actions. The Great Lakes also face new and emerging problems such as the effects of climate change, including changing water levels.

Collectively, these problems have seriously compromised the environmental health of the Great Lakes. As a result, there is a new sense of urgency for action to address the highest priorities for restoring and protecting the Great Lakes. This document provides a short-term plan for 2010, as well as a framework for a strategic multi-year approach to address these urgent problems.

### **A New Great Lakes Restoration Initiative**

EPA, in concert with its federal partners on the Great Lakes Interagency Task Force,<sup>1</sup> will lead the development and implementation of a Great Lakes Restoration Initiative. The Initiative begins in 2010 by providing \$475 million for programs and projects strategically chosen to target the most significant problems in the Great Lakes ecosystem and to demonstrate measurable results. This investment increases federal Great Lakes environmental funding<sup>2</sup> to about \$1 billion annually.

The approach being taken in this Initiative, including the activities and projects which will be developed, is consistent with the extensive work that has been done by the Interagency Task Force and a wide variety of stakeholders and non-governmental partners over the last 5 years. This Initiative represents the federal government's commitment to significantly advance Great Lakes protection and restoration pursuant to that work. There is a broad base of support in the Great Lakes community for this effort.

EPA has used the strategic planning work of the Interagency Task Force to identify five principal focus areas, encompassing the most significant environmental problems in the Great Lakes (other than water infrastructure) for which urgent action is required. The Initiative will focus Great Lakes protection and restoration activities on:

- Toxic Substances and Areas of Concern
- Invasive Species
- Nearshore Health and Nonpoint Source Pollution
- Habitat and Wildlife Protection and Restoration
- Accountability, Monitoring, Evaluation, Communication, and Partnerships

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<sup>1</sup> The Interagency Task Force includes eleven agency and cabinet organizations: EPA, State, Interior, Agriculture, Commerce, Housing and Urban Development, Transportation, Homeland Security, Army, Council on Environmental Quality, and Health and Human Services.

<sup>2</sup> The March, 2008 Office of Management and Budget Great Lakes Restoration Crosscut Report to Congress identified an enacted federal budget for Great Lakes environmental protection and restoration of \$643 million in FY2008 and a proposed President's budget of \$551 million for FY2009. OMB will complete an updated crosscut in late June.

Through this collaborative Initiative amongst EPA and the other Agencies on the Interagency Task Force, the distribution of funds requested by the President for FY2010 will be directed such that it maximizes Great Lakes restoration and protection.

### **FY2010 Planning and Allocations**

In February 2009, EPA initiated a planning process with other federal agencies through the Interagency Task Force, collaborating to develop the attached framework for the five focus areas identified above in order to determine up-front what the Initiative can accomplish in its first year and how best to make progress toward the Initiative's environmental outcomes, recognizing each agency's mission and strengths. The framework for each focus area includes a problem statement and proposed general environmental outcome, measures of progress, the principal actions in support of the outcome, and Agency-specific actions. Federal Agency participation in this Initiative is generally expected to be done through redeployment of existing human resources. For all projects, including Federal, there is a bias for projects without, or with a minimum of, overhead.

Interagency Task Force members were asked to propose programs and projects in support of the Initiative, using the following criteria and principles:

- Ability to achieve strategic and measurable environmental outcomes linked to the highest priority issues;
- Ability to advance applicable ecological priorities of Lakewide Management Plans, Remedial Action Plans for Areas of Concern, as well as other relevant national and regional coordinated strategic planning efforts<sup>3</sup>;
- Bias for projects that are both ready-to-go and will have results soon (however, some funding will be set aside for monitoring, particularly where it is needed to establish baseline conditions);
- Observable local impacts, especially for projects at the field level;
- Strong bias for inter-agency/inter-organizational coordination and collaboration;
- Support new work, or enhance (but do not replace) existing Great Lakes base activities;
- Public support;
- Ability to leverage non-Federal resources;
- Promotion of long-term societal, economic, and environmental sustainability;
- Minimization of transaction costs; and
- Feasibility of prompt implementation.

Projects and Activities must also meet standards for:

- Sound science;
- Experience, ability, and authority of the funding recipient to properly perform the work;
- Reasonableness of project costs; and

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<sup>3</sup> Including such efforts as State Wildlife Action Plans, the Fish and Wildlife Service (FWS) National Fish Habitat Action Plan, the Joint Strategic Plan for Management of Great Lakes Fisheries, and the U.S.-Canada Great Lakes Fishery Convention (including priorities set by the Great Lakes Fisheries Commission (GLFC)/Council of Lake Committees (CLC) that that promote the restoration of native species and a healthy ecosystem.)

- Measuring progress and success.

EPA and its federal partners have used these criteria to determine provisional overall funding targets for the focus area areas and the intrinsic parts of each, such as planning, establishment of baselines, needed additional research and monitoring, outreach, and implementation. Some details of the plan may change as we work with our Federal partners to further refine our 2010 activities; the summary below represents plans as of the time this document went to press. Final allocations are also dependent upon actual appropriations and the development of Interagency Agreements consistent with the principles and criteria of the Initiative.

**Summary of FY2010 Provisional Allocations by Focus Areas (thousands of dollars)**

Agency	Toxic Substances and Areas of Concern	Invasive Species	Nearshore Health and Nonpoint Source Pollution	Habitat and Wildlife Protection and Restoration	Accountability, Monitoring, Evaluation, Communication, and Partnerships	Totals	% Share
DHS-USCG	\$2,850	\$4,000				\$6,850	1.4%
DOC-NOAA	\$2,450	\$1,000	\$2,720	\$15,000	\$11,000	\$32,170	6.8%
DOD-USACE	\$9,996	\$3,250	\$14,550	\$17,600	\$500	\$45,896	9.7%
DOI-BIA				\$3,000		\$3,000	0.6%
DOI-NPS	\$2,800	\$2,738	\$1,550	\$2,862	\$500	\$10,450	2.2%
DOI-USFWS	\$5,400	\$19,859		\$32,242		\$57,501	12.1%
DOI-USGS	\$2,070	\$2,338	\$2,562	\$3,920	\$4,090	\$14,980	3.2%
DOS-GLFC		\$7,000				\$7,000	1.5%
DOS-IJC					\$300	\$300	0.1%
DOT-FHWA				\$2,500		\$2,500	0.5%
DOT-MARAD		\$3,000				\$3,000	0.6%
EPA	\$113,880	\$8,280	\$44,807	\$18,880	\$48,306	\$234,153	49.3%
HHS-ATSDR	\$5,500					\$5,500	1.2%
USDA-APHIS		\$3,000				\$3,000	0.6%
USDA-NRCS		\$1,000	\$30,642	\$2,000		\$33,642	7.1%
USDA-USFS	\$2,000	\$4,800	\$500	\$7,258	\$500	\$15,058	3.2%
<b>Totals</b>	<b>\$146,946</b>	<b>\$60,265</b>	<b>\$97,331</b>	<b>\$105,262</b>	<b>\$65,196</b>	<b>\$475,000</b>	<b>100.0%</b>
<b>% Share</b>	<b>31%</b>	<b>13%</b>	<b>20%</b>	<b>22%</b>	<b>14%</b>	<b>100%</b>	

Throughout the summer of 2009, EPA will work with the other Agencies to further develop these programs and projects. Agencies continue to confer to define their roles in this Initiative and to

strategically determine how they can most effectively and efficiently work together. Work within each focus area will be accomplished through federal interagency cooperation, and by working closely with States, Tribes, local government, academia, NGOs, and other stakeholders in the Great Lakes basin, as well as our Canadian colleagues. Initiative programs and projects will be guided by the Lakewide Management Plans, Remedial Action Plans, the Great Lakes Binational Toxics Strategy, and other action plans for carrying out the responsibilities of the United States under the Great Lakes Water Quality Agreement.<sup>4</sup> Agencies will be expected to maintain their base level<sup>5</sup> of Great Lakes activities.

### **FY2010 Funding - Grants**

The planning process for the Initiative assumes that Great Lakes Restoration Initiative grant funding for States, Tribes, Municipalities, universities, and other organizations can be available early in FY2010. In order to be positioned to fund projects through grants as soon as possible after an appropriation is made, EPA is collaborating with the Interagency Task Force member agencies to do as much up-front work as possible, including issuance of a Request for Proposals early in the summer of 2009 before an appropriation has been made.

The provisional allocations identified in the previous section include proposed funding for grants. An oversight group with representatives of the Interagency Task Force will oversee development of a coordinated series of Requests for Proposals by the agencies. Most Initiative grants will be issued competitively pursuant to Requests for Proposals addressing the five identified focus areas<sup>6</sup>. Should significant problems and issues need to be addressed outside of the five focus areas, a competitive grant program would be used to fill gaps, cut across or overlap focus areas, address unanticipated areas, or facilitate innovation. If EPA were to receive an appropriation by October 1, 2009, the first grants could be issued as early as December, 2009, with other grants issued throughout the course of the year.

Threshold criteria for grant selection will include a demonstration of the ability to commence work in FY2010 and a demonstration of the connection of the project to Great Lakes priorities. Grant selection criteria for all Great Lakes Restoration Initiative grants will include such factors as were identified previously for federal funding.

### **Funding for FY2011 and Beyond**

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<sup>4</sup> Habitat and wildlife efforts will also be guided by the Partners in Flight North American Landbird Conservation Plans, North American Waterbird Conservation Plan, North American Waterfowl Management Plan, U.S. Shorebird Conservation Plan, Great Lakes Coastal Wetland Monitoring Plan, Great Lakes Fishery Plan, and Endangered Species Recovery Plans.

<sup>5</sup> As a starting point for identifying their base, Agencies were asked to use the March 2008 OMB Great Lakes Restoration Crosscut Report to Congress ([http://www.whitehouse.gov/omb/reports/2008\\_great\\_lakes.pdf](http://www.whitehouse.gov/omb/reports/2008_great_lakes.pdf)).

<sup>6</sup> The five focus areas identified for the GLRI largely capture the environmental priorities expressed by the Great Lakes community in recent years. These expressions of needed work are included in Lakewide Management Plans, Remedial Action Plans, fisheries management plans, biodiversity plans, waterfowl management plans, endangered species plans, reports published by the International Joint Commission, and the 2005 Great Lakes Regional Collaboration Strategy.

Focus areas and priorities for the Initiative in future years may be refined as a Great Lakes Restoration Plan is developed by EPA, in consultation with the Great Lakes Interagency Task Force by September 1, 2009. This Plan will be used to guide funding for Great Lakes restoration activities in 2011 and beyond, and will:

- Include outcome-based ecosystem goals and performance measures that also support existing efforts such as implementation of the Great Lakes Water Quality Agreement and the Great Lakes Binational Toxics Strategy.
- Require an Annual Report to the President beginning in 2011 detailing activities to date, activities planned for the upcoming year, and progress toward meeting goals.
- Recognize other Agencies' missions and strengths and distribute funds as appropriate.
- Include a mix of federal projects and grants<sup>7</sup>. Grants are expected to be distributed through project prioritization and/or on a competitive basis, not a formula. The long-term outcome goals and specific annual targets will guide project prioritization and distribution of grant funding.
- Determine which existing agency inventory and monitoring data can be used to establish baselines for the various performance goals.
- Include monitoring that maintains important current status and trend information and establishes baseline conditions where they do not already exist.
- Not include infrastructure projects that are eligible for the Clean Water or Drinking Water State Revolving Funds, although it is recognized that these projects are essential to reach many of the goals that are outlined in this effort.

Next Steps for development of the Plan for FY2011 and beyond include:

- Refine goals, objectives, and outcomes for each focus area by June, 2009.
- Interagency Task Force reviews and approves of goals, objectives, and outcomes by July, 2009.
- Consultation with Great Lakes stakeholders, and broader public, as appropriate, in the July 2009 timeframe.
- Proposed activities and projects to achieve outcomes, highlighting FY2011 needs by August, 2009.
- EPA, with help of Interagency Task Force, completes draft plan by September 1, 2009.

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<sup>7</sup> In this paper, the term "grants" includes both grants and cooperative agreements.

## STRATEGIC FRAMEWORK

### I. Toxic Substances and Areas of Concern

#### Problem Statement

While certain persistent toxic substances have been significantly reduced in the Great Lakes Basin Ecosystem over the past 30 years, they continue to be present at levels above those considered safe for humans and wildlife, warranting fish consumption advisories in all five Lakes. Indigenous communities that still live off the land in the basin are particularly vulnerable to fish contamination. Continuing sources of persistent toxic substances include releases from contaminated bottom sediments; industrial and municipal point sources; nonpoint sources including atmospheric deposition, agricultural and urban runoff, and contaminated groundwater; and cycling of the chemicals within the Lakes. Efforts to restore the degraded conditions in the 30 US Great Lakes Areas of Concern (AOCs) are underway, but much more needs to be done, including the remediation of an estimated 43 million cubic yards of legacy contaminated sediments which are a primary source of beneficial use impairments in virtually all the AOCs.

In addition to the well-known persistent toxics like polychlorinated biphenyls (PCBs), mercury and banned pesticides, there are chemicals of emerging concern that have been detected in the Great Lakes over the past several years which may pose threats to the health of the ecosystem, including many product related materials such as pharmaceuticals and personal care constituents for which there is very little environmental information. To protect human and ecosystem health against future threats, these substances must be better understood with respect to their potential hazards and routes of exposure, and effective regulatory and management responses must be deployed in a timely fashion.

Work in this area will support the general outcomes of protecting the Great Lakes from toxic substances, cleaning up contaminated sediments, and restoring Areas of Concern.

#### Measures of Progress

The Great Lakes Restoration Initiative will significantly accelerate pollution prevention and reduction in the Great Lakes ecosystem. The initial set of measures by which progress will be evaluated in this focus area are:

- AOC beneficial use impairments removed.<sup>8</sup>
- Cubic yards (in millions) of contaminated sediment remediated in the Great Lakes.<sup>9</sup>
- Pollution (in pounds, potentially entering the Great Lakes) reduced through prevention and waste minimization projects.
- Annual percentage decline for the long term trend in average concentrations of Legacy pollutants in Great Lakes wildlife and of atmospheric deposition.

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<sup>8</sup> Existing GPRA Measure.

<sup>9</sup> Existing GPRA Measure.

**Principal Actions in Support of Outcome**

The principal 2010 Great Lakes Restoration Initiative actions to protect the Great Lakes from toxic substances, clean up sediments, and restore Areas of Concern include:

- *Restore Areas of Concern/Remediate Contaminated Sediments* – Accelerate the rate of sediment clean-up in AOCs and other locations throughout the Great Lakes basin through programs such as the Great Lakes Legacy Act, Water Resources Development Act, and Natural Resource Damage Assessment. Restore and delist AOCs through strategic actions identified in Remedial Action Plans to restore individual beneficial uses.
- *Strategic Pollution Prevention and Reduction Projects* – Prevent toxic pollutants from getting into the Great Lakes through a variety of strategic actions, working closely with State, tribal and local governments. Initiate new Clean Sweep and collection programs in the Great Lakes basin to promote the safe disposal and elimination of toxic and other substances, including pesticides, pharmaceuticals, and other waste stream pollutants that can cause impairments.
- *Protect Human Health through Safer Fish Consumption* – Continue to protect Great Lakes fish consumers with sound and sensible advice provided through robust State and tribal fish advisory programs. Work closely with the Great Lakes medical and health communities to educate the general public regarding the benefits and risks of Great Lakes fish consumption.
- *Measuring Progress and Assessing New Toxic Threats* – Measure progress in cleaning up toxics in the Great Lakes environment through comprehensive monitoring. Identify significant sources of new toxics through robust surveillance, in order to devise and implement effective control strategies.

## II. Invasive Species

### Problem Statement

Progress toward restoring the Great Lakes has been significantly undermined by the effects of non-native invasive species. Over 180 non-native species now exist in the Great Lakes. The most invasive of these propagate and spread, ultimately degrading habitat, out-competing native species, and short-circuiting food webs. Prevention is the most cost-effective approach to dealing with organisms that have not arrived and could potentially threaten the lakes. New invasive species can be introduced into the Great Lakes region through various pathways, including: commercial shipping, canals and waterways, trade of live organisms, and activities of recreational and resource users. Once invasive species establish a foothold in the Great Lakes, they are virtually impossible to eradicate; however, invasive species still need to be controlled to maintain the health of the Great Lakes ecosystem. Advanced technology and innovative management practices can significantly reduce the cost of control.

Prevention and control efforts must be accelerated in order to prevent new introductions and to minimize the further spread of the organisms to inland lakes, the Mississippi River watershed, and beyond. Federal Agencies will need to work with their partners in state, tribal, and local governments, academic institutions, industry, and non-governmental organizations to:

1. Stop the introduction of new non-native invasive species into the Great Lakes through enhanced prevention programs.
2. Control and reduce the spread of invasives species already here through innovative technology and enhanced on-the-ground efforts.
3. Establish early detection and rapid response capabilities to deal with accidental introductions.

Work in this area will support the general outcomes of preventing new introductions of non-native invasive species in the Great Lakes basin and stopping the further spread of invasives in the Great Lakes basin.

### Measures of Progress

The Great Lakes Restoration Initiative will significantly advance efforts to prevent new introductions of non-native invasive species in the Great Lakes basin and to stop the further spread of invasives in the Great Lakes basin. Interagency Task Force agencies will work to further develop the initial set of measures by which progress will be evaluated in this focus area. Measures are expected to focus on:

- Prevention: Reduced risk associated with introduction pathways, through the development of treatment technology, control structures, enhanced enforcement, and expanded outreach.
- Control: Reduced spread of invasive species through supporting State control measures, enhancing oversight of live organisms in commerce, reducing invasive plants on farms and weed management areas, promoting the development of effective control technology.

- Early Detection and Rapid Response: Establishment of early detection and rapid response capabilities to deal with accidental introductions before they become established.

### **Principal Actions in Support of Outcome**

The principal 2010 Great Lakes Restoration Initiative efforts to prevent new introductions of non-native invasive species in the Great Lakes basin and stop the further spread of invasives in the Great Lakes basin include:

- *Develop Ballast Water Treatment that Protects Freshwater Ecosystems* - develop a coordinated approach to the development of ballast water treatment suitable for fresh water ecosystems, though the use of laboratory and ship-board testing, verification of treatment technologies, and coordination with the maritime industry.
- *Implement Early Actions to Address Water Pathways Vectors* – Strategically identify key waterways which could introduce invasive species to the Great Lakes and implement actions such as barriers to reduce this risk. Existing canals and extreme storm events can form hydrological connections which may introduce invasive species into the Great Lakes. Models and analysis of hydrological connections under different weather conditions are needed to identify and minimize risks of such barrier bypasses.
- *Prevention by Broad Stakeholder Outreach and Education* – Promote actions, including coordinated education and outreach, which will prevent the introduction and spread of invasive species through recreational uses such as hunting, fishing and recreational boating. Use of best practices will ensure the sustainable use of the resource.
- *Develop and Demonstrate Innovative Control Technology* – Promote the development and use of new control technologies which will significantly reduce the cost and/or increase the effectiveness of invasive species control measures.
- *Support States Role in Invasive Species Prevention and Control* - Support the development and on-the-ground implementation of Aquatic Nuisance Species Management Plans for each Great Lake state.
- *Control Key Invasive Species and Investigate Causal Mechanisms by which Invasives impact Native Species* – Develop a better understanding and models of ecosystem interactions and management options for minimizing the impact of invasives, including new treatment or control methods.
- *Establish Early Detection and Rapid Response Capability* - Work with federal and state jurisdictions to initiate surveillance activities to detect new invaders and establish the capacity, methods, and contingency plans for a rapid response. Joint planning will allow the mobilization of shared resources to create the best opportunity for eradication

### **III. Nearshore Health and Nonpoint Source Pollution**

#### **Problem Statement**

The nearshore waters of the Great Lakes are a primary source of drinking water, supplier of fish for both personal and commercial benefit, and a recreational outlet for millions of U.S. residents and visitors. Nearshore water quality has become degraded; however, as evidenced by eutrophication resulting from excessive nutrients; hazardous algal blooms; cladophora washing ashore to make unsightly, odiferous rotting mats on beaches; avian botulism; and beach closings. The environmental stressors causing these problems include excessive nutrient loadings from both point and nonpoint sources; bacteria and other pathogens responsible for outbreaks of botulism and beach closures; development and shoreline hardening which disrupt habitat and alter nutrient and contaminant runoff; and agricultural practices which increase nutrient and sediment loadings.

Many of the point sources of pollution to the Great Lakes have been controlled. Nonpoint sources are now the primary contributors of many pollutants to the Lakes and their tributaries. The complexity of the pollutants and their presence in soil, water and air make pollution abatement for nonpoint sources particularly difficult to address. Control strategies to date have failed to deliver the degree of stream and lake restoration necessary for the protection and maintenance of the Great Lakes.

Work in this area will support the general outcomes of improving the health of Great Lakes nearshore areas and reducing nonpoint source pollution to levels that do not impair nearshore waters.

#### **Measures of Progress**

The Great Lakes Restoration Initiative will significantly improve the health of Great Lakes nearshore areas and will advance the reduction of nonpoint source pollution to levels that do not impair nearshore waters. The initial set of measures by which progress will be evaluated in this focus area are:

- Pounds of phosphorus from nonpoint sources to water bodies.
- Tons of sediment from nonpoint sources to water bodies.
- Percentage of beaches meeting bacteria standards over 95% of the time.
- Extent and severity of Great Lakes Hazardous Algal Blooms.
- Miles of Great Lakes coastline negatively impacted by Cladophora growth.

### **Principal Actions to Support Outcome**

The principal 2010 Great Lakes Restoration Initiative efforts to improve the health of Great Lakes nearshore areas and reduce nonpoint source pollution to levels that do not impair nearshore Great Lakes waters include:

- *Place-Based Watershed Implementation.* Significant progress has been made nationally and in the Great Lakes basin in addressing soil erosion and in reducing nutrient loads to tributaries to the Great Lakes through the existing state and Federal programs. However water quality problems still exist and loadings of sediment and nutrients are still unacceptably high in a number of areas around the Great Lakes. This results in increased costs for navigation dredging of harbors, and in localized environmental problems such as mats of rotting algae on swimming beaches and along the shore. GLRI efforts in this area will include identification of candidate watersheds, performing scientific analyses to strategically target where on-the-ground actions can be most effective, and providing supplemental funding to implement those actions. This will involve close collaboration between state programs, NRCS, the Corps of Engineers, USFWS, USGS and EPA.
- *Identify sources and reduce loadings of nutrients and soil erosion.* These activities will contribute to the reduction or elimination of the number and severity of incidences of ecosystem disruptions, including Cladophora, hazardous algal blooms (HABs), botulism, and other issues associated with eutrophication. Activities will include: applying research and modeling to prevent incidences of Cladophora, HABs and botulism; enhancing or implementing watershed practices to reduce export of nutrients and soils to the nearshore waters; and establishing and implementing total maximum daily loads (TMDLs) for phosphorus, scaled from river reaches to watersheds to whole Great Lakes basin.
- *Improve Public Health Protection at Beaches.* Humans are put at risk when exposed to pathogenic bacteria. These activities will reduce risk to human health at swimming beaches by reducing the abundance of pathogenic organisms to levels below established criteria, increasing the effectiveness of monitoring for pathogens, modeling environmental conditions likely to result in elevated levels of bacteria, or enhancing communications to the public about daily swimming conditions.
- *Generate Critical Information for Protecting Nearshore Health.* The nearshore environment of the Great Lakes is highly varied, including relatively unspoiled shorelines, highly urbanized reaches, tributary mouths, embayments, wetlands and other environmental features. These activities will promote the collection of data about nearshore conditions and stresses, the assessment of information and management

**5/05/09**

implications, or the dissemination of information to all potential users in the Great Lakes community.

## IV. Habitat and Wildlife Protection and Restoration

### Problem Statement

The health of Great Lakes habitats and wildlife depends upon the protection and restoration of ecosystems: the Great Lakes, the coastline, wetlands, rivers, and watersheds. Humans benefit from healthy ecosystems. Healthy Great Lakes, for example, provide us with clean drinking water; rare wildlife populate a variety of unique coastline habitats; wetlands help control floodwaters; rivers transport sediments, nutrients and organic materials throughout the watershed; forests provide oxygen while reducing erosion and sedimentation; and, upland habitats produce topsoil and habitats for pollinators and bio-control agents. Fully resilient ecosystems buffer the impacts of climate change.

A multitude of threats affect the health of Great Lakes habitats and wildlife. Habitat destruction and degradation due to development; competition from invasive species; the alteration of natural lake level fluctuations and flow regimes from dams and other control structures; toxic compounds from urban development, poor land management practices and non-point sources; and, habitat fragmentation have impacted habitat and wildlife. This has led to an altered food web, a loss of biodiversity, and poorly functioning ecosystems.

Work in this area will support the general outcomes of protecting and restoring Great Lakes habitat and wildlife.

### Measures of Progress

The Great Lakes Restoration Initiative will significantly accelerate Great Lakes habitat and wildlife protection. Federal agencies expect to fund protection or restoration of more than 23,000 acres of coastal, wetland, shoreline, and upland habitats and 1,000 miles of streams for fish passage. The initial set of measures by which progress will be evaluated in this focus area are:

- Number of habitat acres restored to improve Great Lakes ecological function.
- Wildlife recovery accelerated.
- Miles of shoreline with natural coastal and hydrological processes restored.
- Acres of wetlands and forested areas protected, restored and enhanced.
- Improved population status of species.

### Principal Actions to Support Outcomes

The principal 2010 Great Lakes Restoration Initiative efforts to protect and restore Great Lakes habitat and wildlife include:

- *Enhancing Wetland Protection and Restoration* – Through the suite of federal programs, agencies will work with partners to expand efforts on Great Lakes wetlands for the benefit of resident and migratory species.
- *Improve Aquatic Ecosystem Resiliency* – Agencies will identify and work together to protect and restore cold water Great Lakes tributaries that will provide ecosystem

resiliency and serve as refuges, as part of an adaptation strategy for climate change. Assessment of thermal conditions at other ecologically significant tributaries will further inform efforts to increase ecosystem resiliency and promote species refuges.

- *Strategic Restoration of Native Species and Habitat* – Agencies will share data and management priorities to develop a shared approach and implement early actions for enhancing native species and habitat in an effort to restore the chemical, physical, and biological integrity of each Great Lake basin.
- *Tracking Progress on Coastal Wetlands Restoration* - To assess progress toward restoring Great Lakes coastal wetland health and highlight the importance of coastal wetland conservation and restoration, a long-term coastal wetland monitoring program will be implemented to establish baselines of coastal wetland conditions using a statistical schedule and common protocols/methods that were established by coastal wetland scientists and managers over the past eight years. The effort will support and enhance existing efforts, such as the National Wetland Inventory.

## **V. Accountability, Monitoring, Evaluation, Communication, and Partnerships**

### **Problem Statement**

The Great Lakes Restoration effort requires additional oversight and coordination to succeed. There are gaps in baselines and in efforts to measure and monitor key indicators of ecosystem function, to evaluate restoration progress, and to provide the information decision-makers need. This information needs to be based on best available science, and compiled and communicated consistently to decision-makers to allow them to assess ecosystem conditions and to track restoration progress. Outreach and education is also needed to educate the public on the role they can play in protecting and restoring the Great Lakes – and why it is crucial to do so. Information must also flow both ways – the governments need to hear from the stakeholders about priorities most critical to them and factor in these comments as appropriate.

The Great Lakes span many different government jurisdictions along with their regulatory agencies and authorities: two countries, eight U.S. states, two Canadian provinces, 83 U.S. counties, thousands of cities and towns, 33 U.S. tribal governments and over 60 recognized First Nations in Canada. Through the 1909 Boundary Waters Treaty with Canada, the related Great Lakes Water Quality Agreement, and a host of other institutional arrangements, this region has a long history of governments at all levels working in partnership to protect and restore the Great Lakes. Federal coordination efforts have been greatly improved through efforts of the Great Lakes Interagency Task Force and its Regional Working Group. Binational efforts continue through the Binational Executive Committee which oversees the U.S. and Canada's actions to implement the provisions of the Great Lakes Water Quality Agreement. These partnerships must continue and be further strengthened in order to address the complex issues faced by the Great Lakes. Effective public outreach and education strategies must be developed and implemented.

Work in this area will support the general outcomes of improved, collaborative Great Lakes accountability, monitoring, evaluation, communication, and partnerships, which will support improved decision making and accountability for results.

### **Measures of Progress**

The Great Lakes Restoration Initiative will significantly improve collaborative Great Lakes decision making, transparency, and accountability for Great Lakes information. Representatives of the federal agencies below will work together to determine which existing agency inventory and monitoring data can be used to establish baselines for the various performance goals and to identify needed additional research and monitoring, outreach, and implementation. The initial set of measures by which progress will be evaluated in this focus area are:

- Assessment of existing environmental data and indicators across agencies to determine what can be used as part of this new restoration effort, and where gaps exist.
- Implementation of strategic components relevant for Great Lakes transparency, accountability, and decision-making.

### **Principal Actions to Support Outcomes**

Examples of the activities which can be done in 2010 that strategically target this Problem Area to achieve significant, measurable outcomes include:

- *Develop Great Lakes Restoration Accountability System*- Develop and implement a transparent accountability system for the Great Lakes Restoration Initiative, including easy access to information and linkages to planning, budgeting, and results. With and through the LaMPs, partner agencies will report out regularly on Initiative progress on the Great Lakes as a whole and on each of the Lakes, using public forums to assist with the transfer and dissemination of information to the public.
- *Measure and Evaluate the Health of the Great Lakes Ecosystem using the best available science* – Enhance existing programs that measure and assess the physical, biological, and chemical integrity of the Great Lakes. Implement strategic components relevant for Great Lakes decision-making of the U.S. contribution to the Integrated Earth Observation System and the Integrated Ocean Observing System as part of the Global Earth Observing System of Systems. Develop a federal strategy on the key scientific priorities needed to fully assess the impacts climate change may have on the health of the Great Lakes ecosystem and better manage those impacts. Promote the development and implementation of science-based indicators that will better assess and provide a better measure of accountability of actions to improve the health of the Great Lakes ecosystem.
- *Enhance Partnerships* – Enhance coordination and collaboration among Great Lakes partners to help ensure that actions, projects and programs under the Great Lakes Restoration Initiative are efficient, effective and in furtherance of the US- Canada Great Lakes Water Quality Agreement. Partnerships will be advanced and resources and capabilities leveraged through existing collaborative efforts such as the US-Canada Binational Executive Committee, the State of the Lakes Ecosystem Conference, the US-Canada Great Lakes Binational Toxics Strategy, Lakewide Management Plans, the Coordinated Science Monitoring Initiative and Great Lakes Fisheries management.